

C. Remarks

The claims are 1-7 and 9-11, with claims 1 and 7 being independent claim. Claim 8 has been cancelled. Claim 7 has been amended to include the features of cancelled claim 8. Claims 9 and 10 have been amended to reflect the cancellation of claim 7. Claim 11 has been amended for clarification. No new matter has been added. Reconsideration of the present claims is expressly requested.

Claims 8 and 11 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Applicants have cancelled claim 8¹ and amended claim 11 to include the method step, which was allegedly omitted. Accordingly, this rejection should be withdrawn.

Claims 1, 7 and 11 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,631,753 (Hamaguchi) or U.S. Patent No. 6,586,155 B2 (Furuse). Claims 2-6 and 8-10 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Furuse. The grounds of rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicants would like to briefly review some of the key features and advantages of the presently claimed invention. The presently claimed invention is directed, in part, to a method for forming an electrode and wiring. In this method, a base pattern is formed by applying a photosensitive resin containing a water-soluble photosensitive resin component and a water-soluble metallic

¹/Applicants note that claim 8 as originally filed fully complies with 35 U.S.C. § 112, second paragraph. Specifically, original claim 8 clearly recites a range of 1 to 20 % by weight. Claim 8 was cancelled solely for the purpose of including its features in claim 7.

compound onto the substrate and exposing the photosensitive resin. Subsequently, an organic metallic compound is absorbed into the base pattern. Absorbing an organo-metallic compound into the exposed base layer reduces the resistance of the base pattern in order to improve the electrode and the wiring. Then, the base pattern, in which the organic metallic compound is absorbed, is baked. As recited in claim 12, this method may be used to form an electrode and a wire for an image-forming apparatus, which includes a plurality of electron-emitting devices and an image-forming member.

As recited in claim 7, a compounding ratio of the water-soluble metallic compound to the photosensitive resin component in the material for the base pattern is from 1.0 to 20 % by weight. This makes the base pattern easier to obtain and improves the adhesive properties of the electrode and the wiring patterns. Specifically, if the compounding ratio of the metallic compound is too large, an electrode and a wiring base for a fine pattern are difficult to obtain. On the other hand, if the compounding ratio is too small, it is difficult to improve the adhesion of the electrode and wiring pattern. (See page 8, lines 14-24).

Hamaguchi is directed to black matrix substrates and processes for their preparation. Hamaguchi teaches, for example, forming a photosensitive resin layer containing a hydrophilic resin on a transparent substrate and exposing it to light through a photo mask having a pattern for a black matrix, developing the photosensitive resin layer to form a relief on the transparent substrate, immersing the transparent substrate in an aqueous solution of a metallic compound serving as a catalyst for electroless plating, washing with water and drying the transparent substrate, and then bringing the relief on the transparent substrate into contact with an electroless plating solution to form a

light-shielding layer having a pattern for a black matrix. As an alternative to immersing the transparent substrate in an aqueous solution of a metallic compound, this metallic compound may be incorporated into the resin. These methods are intended to provide a black matrix having a low reflectivity.

Applicants respectfully submit that Hamaguchi does not disclose or suggest all of the steps as presently claimed. Assuming, arguendo, that the hydrophilic resin and a metal catalyst in Hamaguchi could be considered, respectively, a water-soluble photosensitive resin and a water-soluble metal compound as presently claimed, Hamaguchi does not disclose or suggest combining these two ingredients prior to exposing the photosensitive resin and then absorbing an organo-metallic compound into the exposed resin.

Specifically, in Hamaguchi, the metallic catalyst is introduced into the resin only once, either before or after the photosensitive layer is exposed. If the catalyst is combined with the resin prior to exposure, there is no disclose or suggestion of a step in which an organo-metallic compound is absorbed after the exposure. If, however, there is a step in which a catalyst is contacted with the resin after exposure, there is no disclosure or suggestion that the resin was combined with a water-soluble metallic compound prior to exposure. There is no motivation for incorporating the catalyst into the resin twice to achieve the desired goals in Hamaguchi.

Furthermore, Hamaguchi does not disclose or suggest a material for the base pattern having a compounding ratio of the water-soluble metallic compound to the photosensitive resin component that is from 1.0 to 20 % by weight. Accordingly, it is clear that Hamaguchi cannot affect the patentability of the presently claimed invention.

Furuse relates to a composition for forming an electro-conductive film. Furuse teaches, for example, dissolving a photosensitive resinous component and an organo-metallic compound in an aqueous solvent, coating the solution on the substrate, drying to evaporate the solvent, exposing the coated film, developing the exposed film and baking the remaining coated film. However, Furuse does not disclose or suggest a step of absorbing an organo-metallic compound into the exposed base pattern.

The Examiner indicated in the Office Action that such a step is disclosed in Furuse at column 3, lines 29-62. However, at column 3, lines 29-62, Furuse merely describes water-soluble organo-metallic compounds and their properties. There is no disclosure in Furuse regarding absorbing an organo-metallic compound after exposure of the base layer and prior to baking.

With respect to material for the base layer, Applicants respectfully submit that Furuse does not disclose or suggest a material for the base pattern having a compounding ratio of the water-soluble metallic compound to the photosensitive resin component that is from 1.0 to 20 % by weight. The Examiner alleged that this range is optimized based on the disclosure in Furuse at column 3, line 63 - column 4, line 7. Applicants respectfully disagree.

“A particular parameter must first be recognized as a result-effective variable . . . before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” M.P.E.P. § 2144.05. The disclosure identified by the Examiner in Furuse at column 3, line 63 - column 4, line 7, however, does not provide this required recognition. This portion of the disclosure in Furuse discusses

water content of the solvent, which affects the volatility of the solution. It is not concerned with a compounding ratio of the ingredients in the solute, which affects adhesion and formation of a fine pattern.

Applicants respectfully submit that Furuse does not disclose or suggest any compounding ratio or that this ratio can affect the properties of the base pattern (i.e., result effectiveness of the ratio). Accordingly, it is clear that Furuse cannot affect the patentability of the presently claimed invention.

In conclusion, Applicants respectfully submit that the cited references, whether considered separately or in combination, do not disclose or suggest the combination of elements presently claimed. Wherefore, Applicants respectfully request that the outstanding rejections be withdrawn and that the present case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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